

***AEROSOL OBSERVING SYSTEM PLATFORM INTEGRATION  
AND AAF INSTRUMENTATION***

Stephen Springston and Arthur Sedlacek

For presentation at  
the First Science Team Meeting of  
the Atmospheric System Research (ASR) Program,  
Bethesda, MD  
March 15-19, 2010

**Environmental Sciences Department/Atmospheric Sciences Division  
Brookhaven National Laboratory**  
P.O. Box, Upton, NY  
[www.bnl.gov](http://www.bnl.gov)

**ABSTRACT**

As part of the federal government's 2009 American Recovery and Reinvestment Act (ARRA), the U.S. DOE Office of Science allocated funds for the capital upgrade of the Atmospheric Radiation Measurement (ARM) Climate Research Facility to improve and expand observational capabilities related to cloud and aerosol properties. The ARM Facility was established as a national user facility for the global scientific community to conduct a wide range of interdisciplinary science. Part of the ARRA-funded expansion of the ARM Facility includes four new Aerosol Observing Systems (AOS) to be designed, instrumented, and mentored by BNL. The enclosures will be customized SeaTainers. These new platforms ([AMF2]: ARM Mobile Facility-2; [TWP-D]: Tropical Western Pacific at Darwin; and [MAOS-A]/[MAOS-C]: Mobile Aerosol Observing System-Aerosol/-Chemistry) will provide a laboratory environment for fielding instruments to collect data on aerosol life cycle, microphysics, and optical/physical properties. The extensive instrument suite includes both established methods and initial deployments of new techniques to add breadth and depth to the AOS data sets. The platforms are designed: (1) to have all instruments pre-installed before deployment, allowing a higher measurement duty cycle; (2) with a standardized configuration improving the robustness of data inter-comparability; (3) to provide remote access capability for instrument mentors; and (4) to readily accommodate guest instrumentation. The first deployment of the AMF2 platform will be at the upcoming StormVEx campaign held at Steamboat Springs, Colorado, October 15, 2010–March 31, 2011 while the TWP-D AOS will be stationed at the ARM Darwin site. The maiden deployments of the MAOS-A and MAOS-C platforms will be during the Ganges Valley Experiment (GVAX) scheduled for April 2011–April 2012. In addition to the ground-based AOS platforms, three major instrument builds for the AAF are also being undertaken (new trace gas package [NO, NO<sub>x</sub>, NO<sub>y</sub>, CO, O<sub>3</sub>, and SO<sub>2</sub>]; Scanning Mobility Particle Sampler [SMPS]; and Particle into Liquid Sampler [PILS]). The current status of the AOS platforms, instrument suites, instituted QA/QC activities, projected AOS VAPs, and inlet design, as well as still-unresolved issues, will be presented.

This poster will be displayed at ASR Science Team Meeting.

**NOTICE:** This manuscript has been authored by employees of Brookhaven Science Associates, LLC under Contract No. DE-AC02-98CH10886 with the U.S. Department of Energy. The publisher by accepting the manuscript for publication acknowledges that the United States Government retains a non-exclusive, paid-up, irrevocable, world-wide license to publish or reproduce the published form of this manuscript, or allow others to do so, for United States Government purposes.